

RESOLUTION 751 (WRC-07)

Use of the frequency band 10.6-10.68 GHz

The World Radiocommunication Conference (Geneva, 2007),

considering

- a) that the frequency band 10.6-10.7 GHz is allocated to the Earth exploration-satellite service (EESS) (passive) and to the space research service (passive) on a primary basis;
- b) that the band 10.6-10.7 GHz is of primary interest for the measurement of rain, snow, sea state, ocean wind and soil moisture;
- c) that this frequency band is used by passive sensors to study natural phenomena producing radio emissions at frequencies fixed by the laws of nature, and therefore shifting frequency to avoid or mitigate interference problems may not be possible;
- d) that any limitation of the operation of passive sensors in the band 10.68-10.7 GHz covered by No. **5.340** would degrade the sensitivity of those sensors;
- e) that the frequency band 10.6-10.68 GHz is also allocated to the mobile, except aeronautical mobile, and the fixed services on a primary basis;
- f) that experience has shown that EESS (passive) sensors currently operating in the band 10.6-10.68 GHz are facing high interference levels from the emissions of systems of active services in some parts of the world;
- g) that studies have concluded that appropriate sharing criteria applicable to both passive and active services would reduce this interference to a level that would permit passive sensors to operate successfully, while allowing continuing operation of active services in the same band,

noting

that, for the purpose of this Resolution:

- point-to-point communication is defined as radiocommunication provided by a link, for example a radio-relay link, between two stations located at specified fixed points;
- point-to-multipoint communication is defined as radiocommunication provided by links between a single station located at a specified fixed point (also called “hub station”) and a number of stations located at specified fixed points (also called “customer stations”);
- automatic transmit-power control (ATPC) is a technique in which the output power of a microwave transmitter is automatically varied to compensate for path propagation conditions; in normal propagation conditions, ATPC maintains the transmitter output power at a reduced level; ATPC is characterized by its range, which is defined as the difference between the maximum and minimum values of transmitted power, and has no impact on the design of the related link,

resolves

1 to urge administrations to take all reasonable steps to comply with the sharing criteria in Tables 1 to 4 contained in Annex 1 to this Resolution when bringing into use stations in the Earth exploration-satellite service (passive), the fixed service and the mobile, except aeronautical mobile, service, noting that EESS (passive) sensors provide worldwide measurements that benefit all countries, even if these sensors are not operated by their country;

2 that the Radiocommunication Bureau shall not make any examination or finding with respect to compliance with this Resolution under either Article 9 or 11.

ANNEX 1 TO RESOLUTION 751 (WRC-07)

Sharing criteria in the band 10.6-10.68 GHz

TABLE 1

Earth exploration-satellite service (passive)

Parameter	Value
Incidence angle (defined as the angle at the Earth's surface between the local vertical and the direction of the passive sensor)	$\leq 60^\circ$
Spatial resolution (defined as the maximum cross-section of the passive sensor -3 dB contour on the Earth's surface)	≤ 50 km (See Note 1)
Main-beam efficiency (defined as the energy of main and cross-polarization components within 2.5 times the -3 dB beamwidth region, relative to the total energy within all angles)	$\geq 85\%$ (See Note 1)

NOTE 1 – These parameters only apply to real-aperture EESS (passive) systems.

TABLE 2

Stations of point-to-point systems in the fixed service

Parameter	Value
Maximum elevation angle	20°
Maximum transmitter power at the antenna port	-15 dBW (See Notes 2 and 3)

NOTE 2 – In the case of point-to-point systems using ATPC, the maximum transmitter power at the antenna port may be increased by a value corresponding to the ATPC range, up to a maximum of -3 dBW.

NOTE 3 – In the case of point-to-point fixed service used for unidirectional transmissions for broadcasting applications, the maximum transmitter power at the antenna port may be increased up to -3 dBW. For such applications, administrations are urged to limit the off-axis e.i.r.p. above 20° elevation to a level of -10 dBW.

TABLE 3

Stations of point-to-multipoint systems in the fixed service

Parameter	Value
Hub stations (See Note 4)	
Maximum transmitter power at the antenna port	-7 dBW
Maximum off-axis e.i.r.p. above 20° from the horizontal plane	-6 dBW
Maximum off-axis e.i.r.p. above 45° from the horizontal plane	-11 dBW
Maximum off-axis e.i.r.p. at 90° from the horizontal plane	-13 dBW
Customer stations (See Note 4)	
Maximum elevation angle	20°
Maximum transmitter power at the antenna port	-8 dBW
Maximum off-axis e.i.r.p. above 45° from the horizontal plane	-18 dBW (See Note 5)

NOTE 4 – Administrations planning point-to-multipoint deployment in the band 10.6-10.68 GHz, paired with another frequency band, are encouraged to only deploy return links (i.e. emissions from customer stations) in the 10.6-10.68 GHz band.

NOTE 5 – In the case of point-to-multipoint systems using ATPC, the maximum transmitter power at the antenna port may be increased by a value corresponding to the ATPC range, up to a maximum of -3 dBW.

TABLE 4

Stations in the mobile service

Parameter	Value
Maximum transmitter power at the antenna port	-17 dBW (See Note 6)

NOTE 6 – In the case of mobile service systems used for broadcasting applications, the maximum transmitter power at the antenna port may be increased up to -3 dBW. For such applications, administrations are urged to limit the off-axis e.i.r.p. above 20° elevation to a level of -10 dBW.

